

VIIIRS - Telecon Ocean Color CAL Val

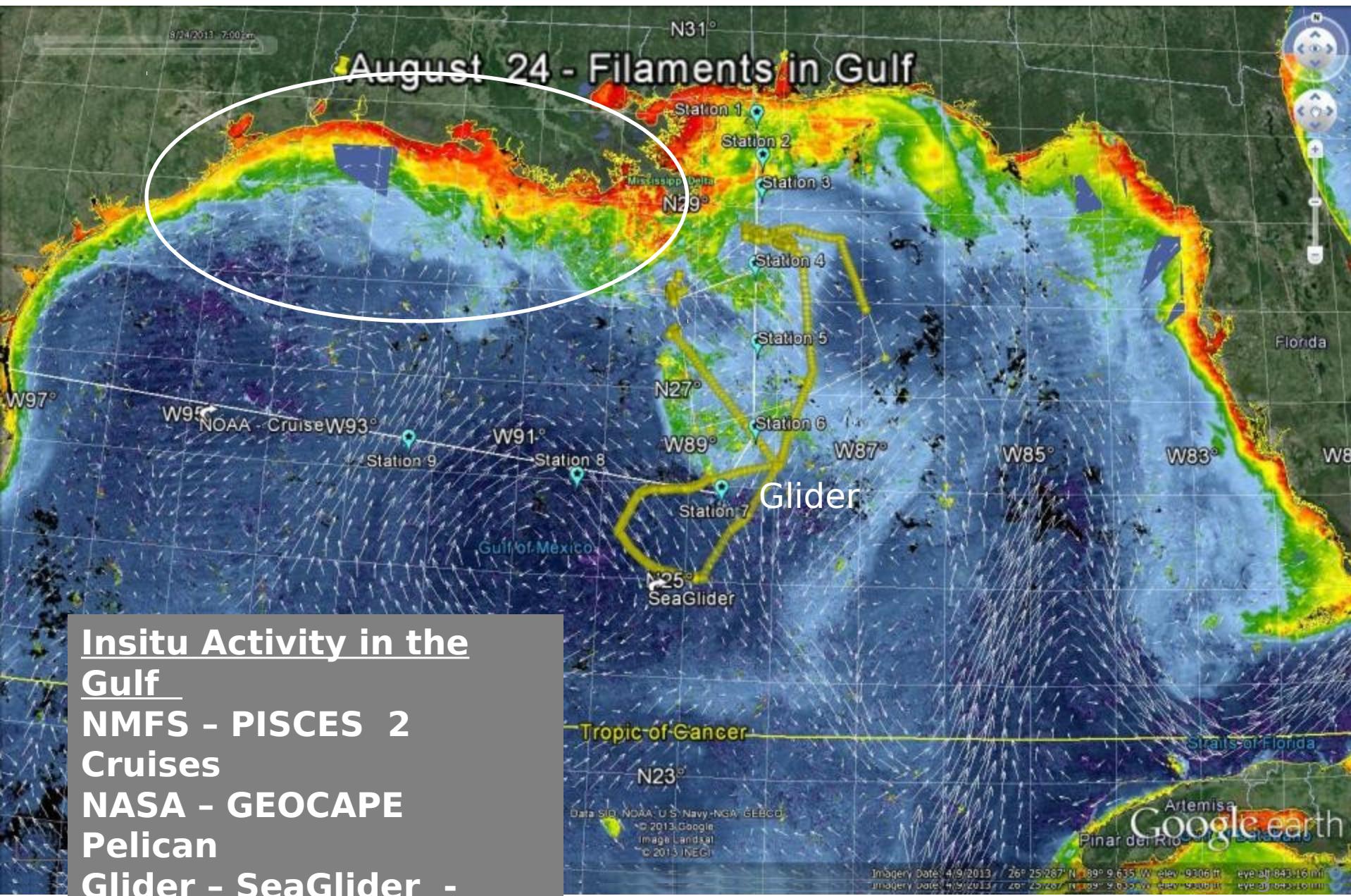
Stennis Team
Nov 21, 2013

R. Arnone, S. Ladner, R. Vandermeulen, J. Bowers,
P. Martinolich, A. Lawson, G. Fargion, D. Crout
USM, NRL, QNA, SDSU

Discussion today :

- 1. Cal Val Activities**
- **Gulf of Mexico --**
- 2. AERONET Time Series Analyses**
- 3. Fisheries Cruise Matchup**
- 4. GeoCape Matchup**
- 5. Chesapeake Bay**
- 6. Plans and Summary**

Recent Activity Ocean Monitoring the Gulf



In situ Activity in the Gulf

NMFS - PISCES 2

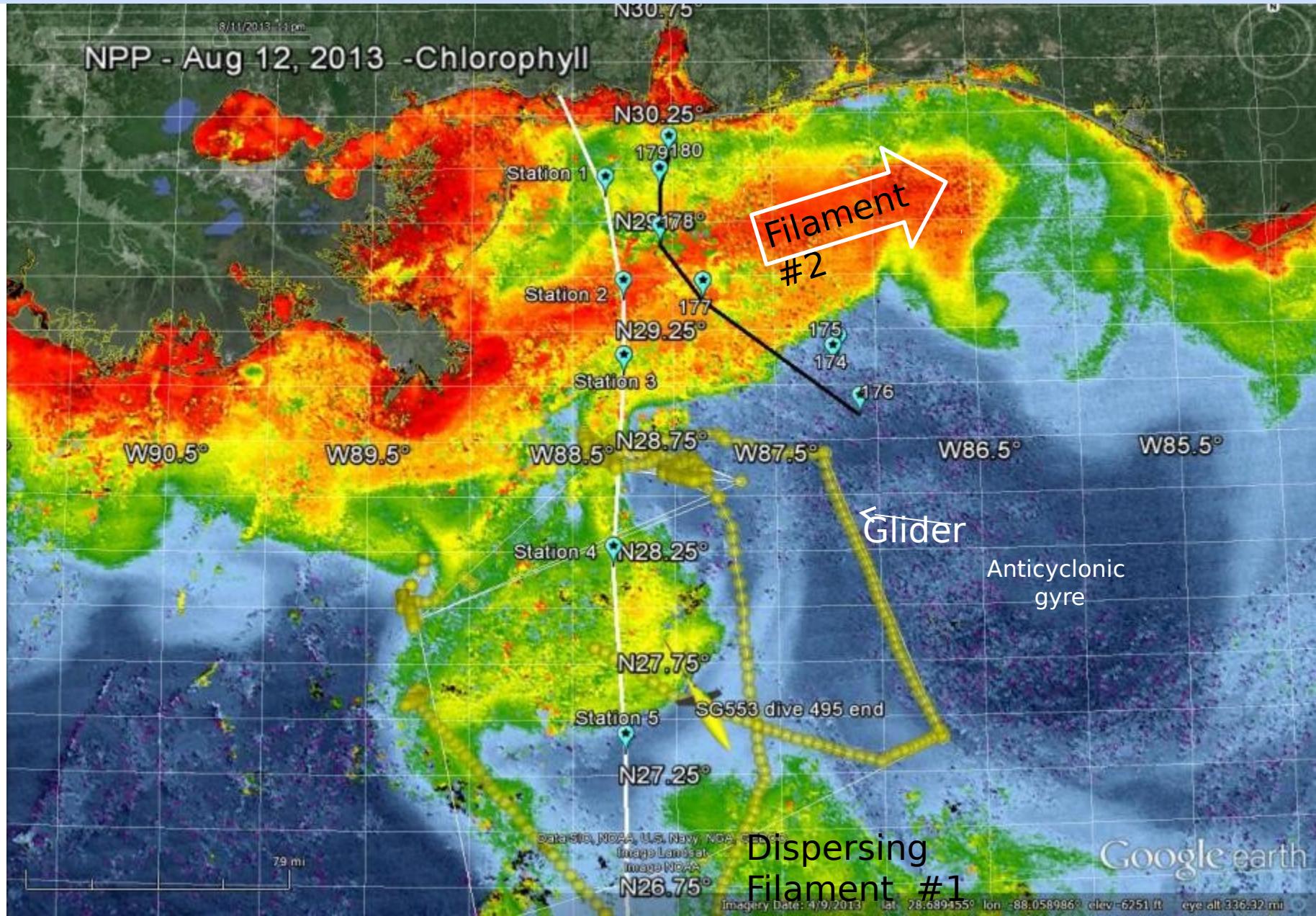
Cruises

NASA - GEOCAPE

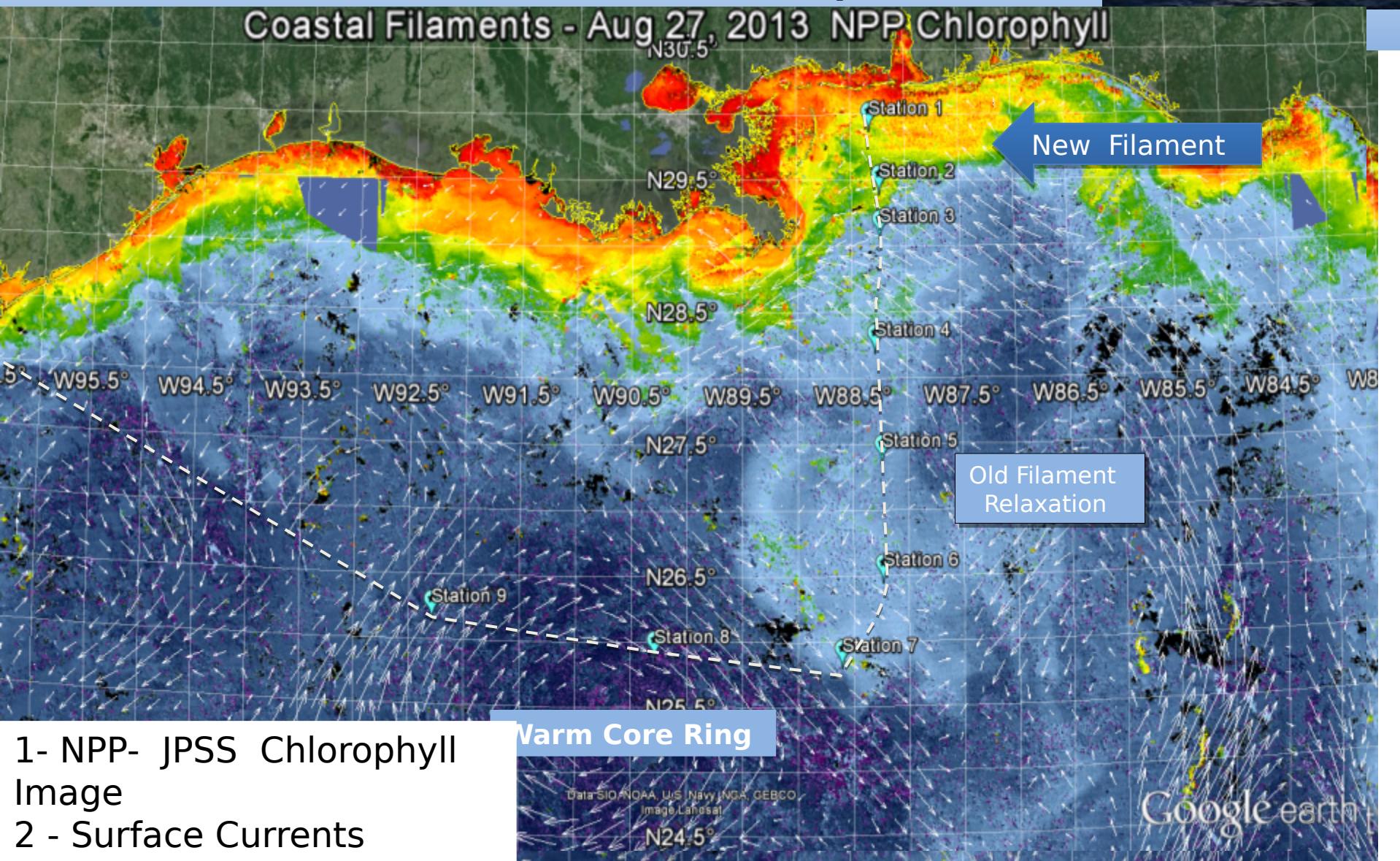
Pelican

Glider - SeaGlider -
NDBC- Shell

Gulf of Mexico - Activity During and Post Ongoing with GeoCape



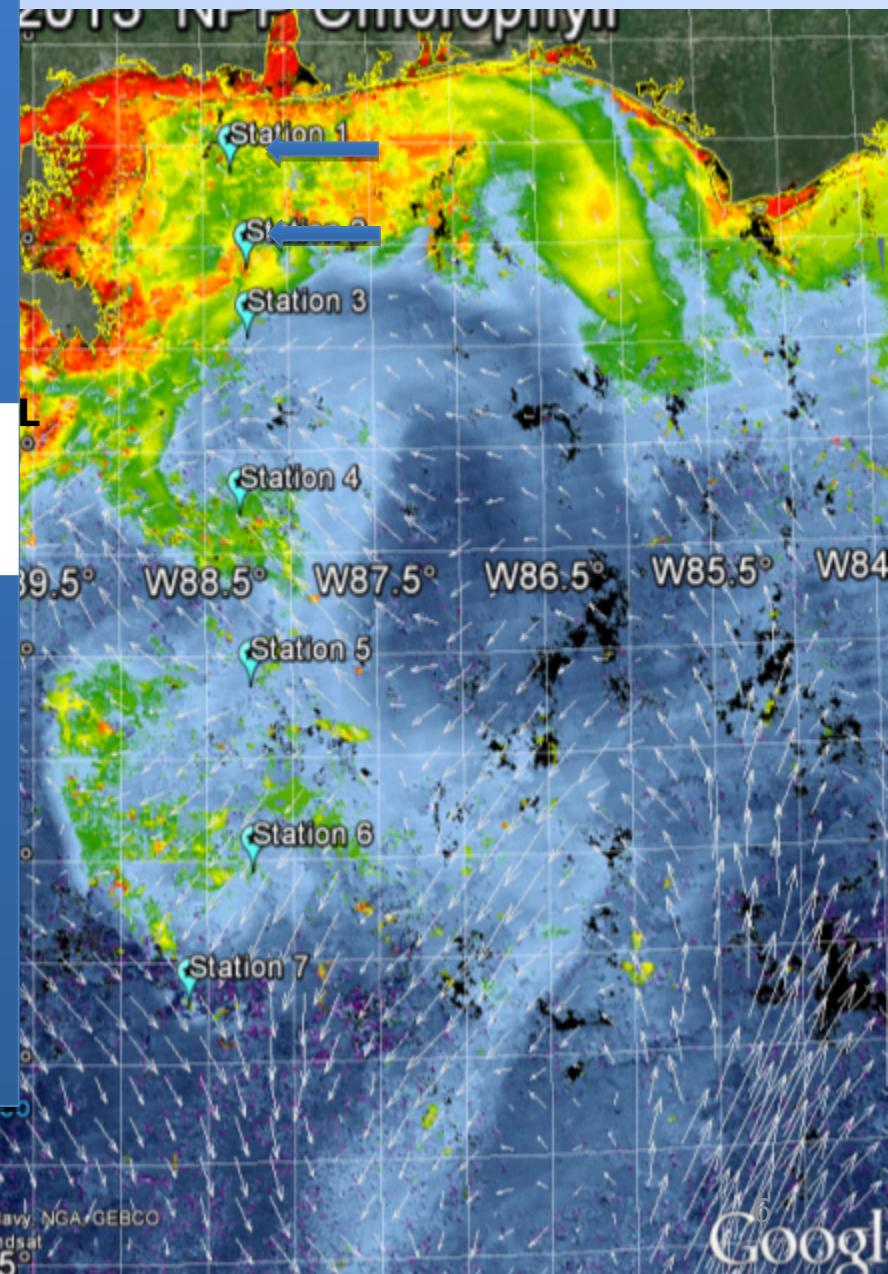
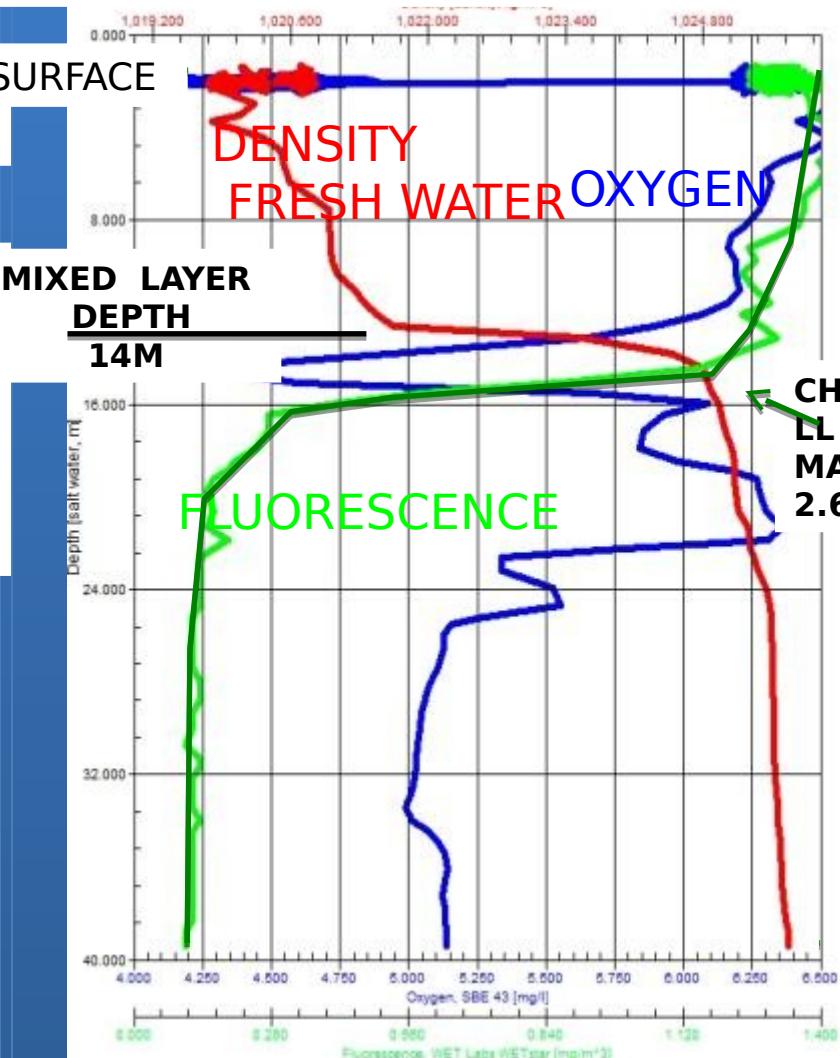
**PISCES Cruise Track Pascagoula to Browns
STATION LOCATIONS Aug 22 - 25
"NMFS - Glenn Zapfe"**



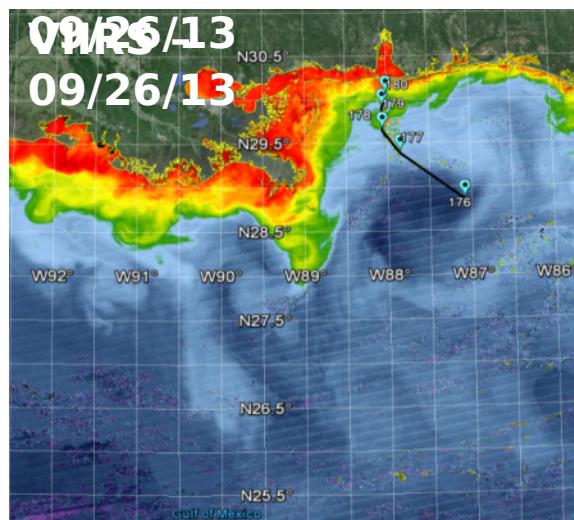
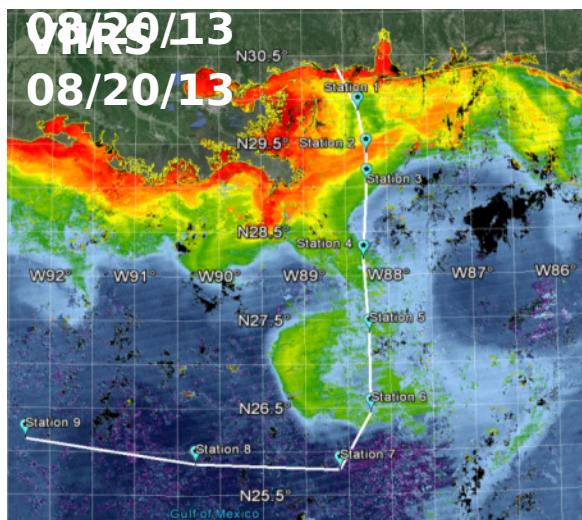
Vertical Structure Aug 23, 2013 - Chlorophyll

NPP VIIRS

TATION 2 : FILAMENT 3.44 mg/m³

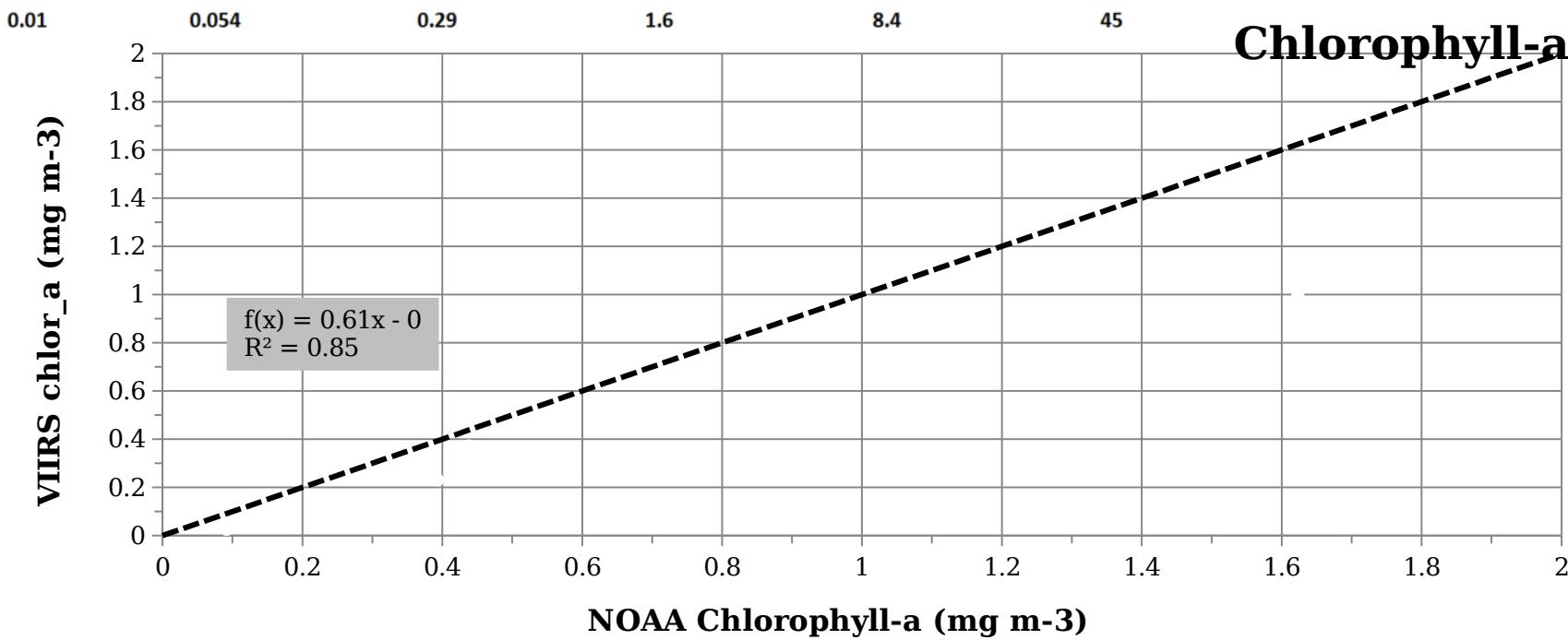


NPP - Chlorophyll Validation

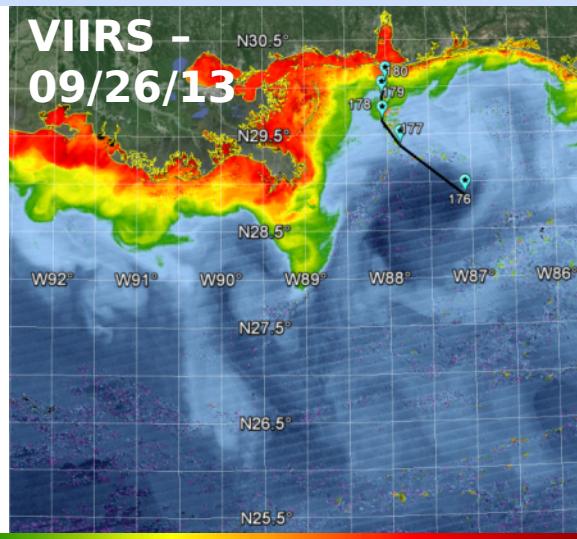
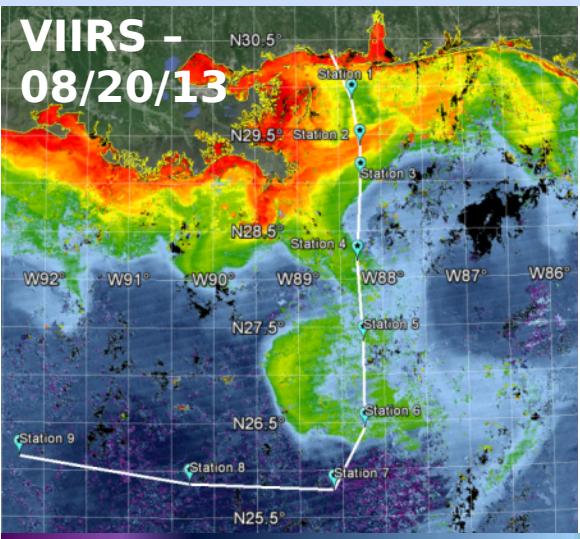


NOAA_Pisces
(08/21 - 08/23,
09/27)

VIIRS matchup,
IDPS
VOCCO



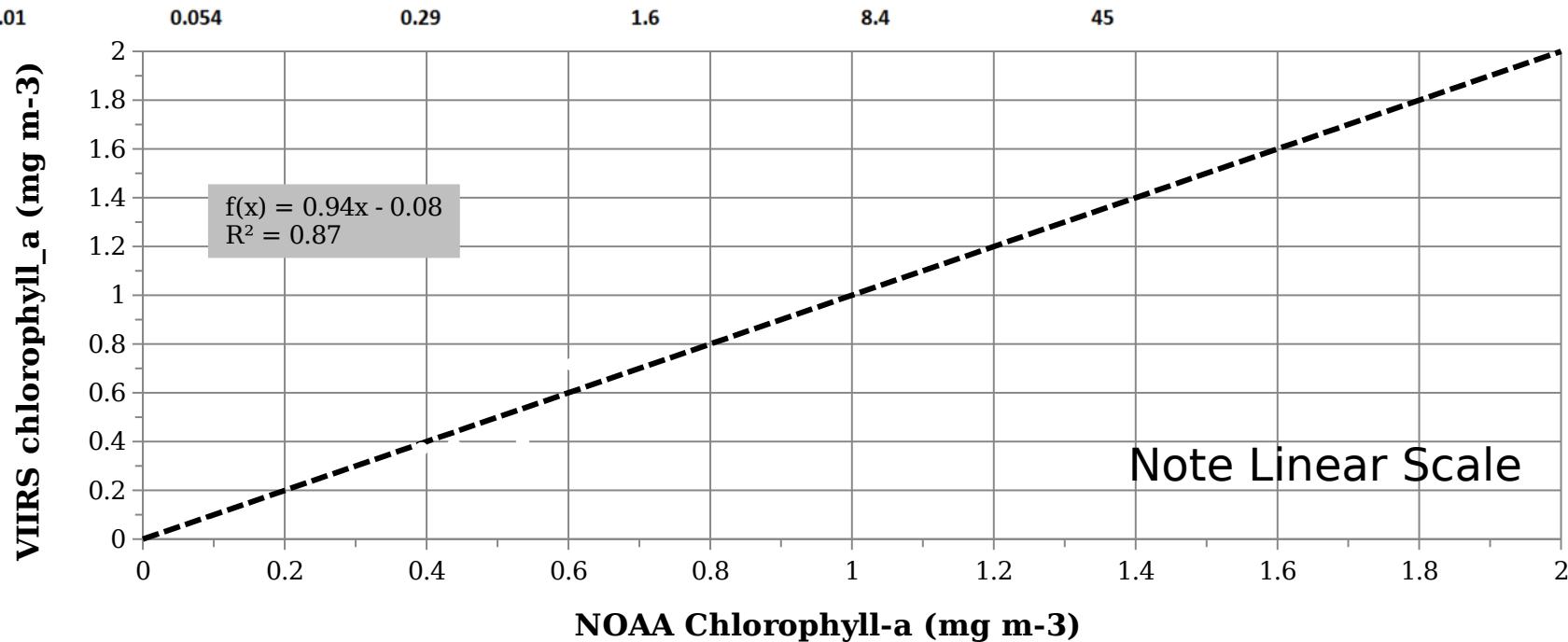
NPP - Chlorophyll Validation



**NOAA_Pisces
(08/21 - 08/23,
09/27)**

**VIIRS matchup,
APS_v4.10.0**

Chlorophyll-a



AERONET Time Series

WAVCIS - ~~Advanced~~ ~~for~~ ~~Experiments~~ ~~Complex~~ Waters
Analyses

- High Scattering environment
- High CDOM
- level 1.5 data \rightarrow 2.0 screening

AAOT - Northern Adriatic Sea

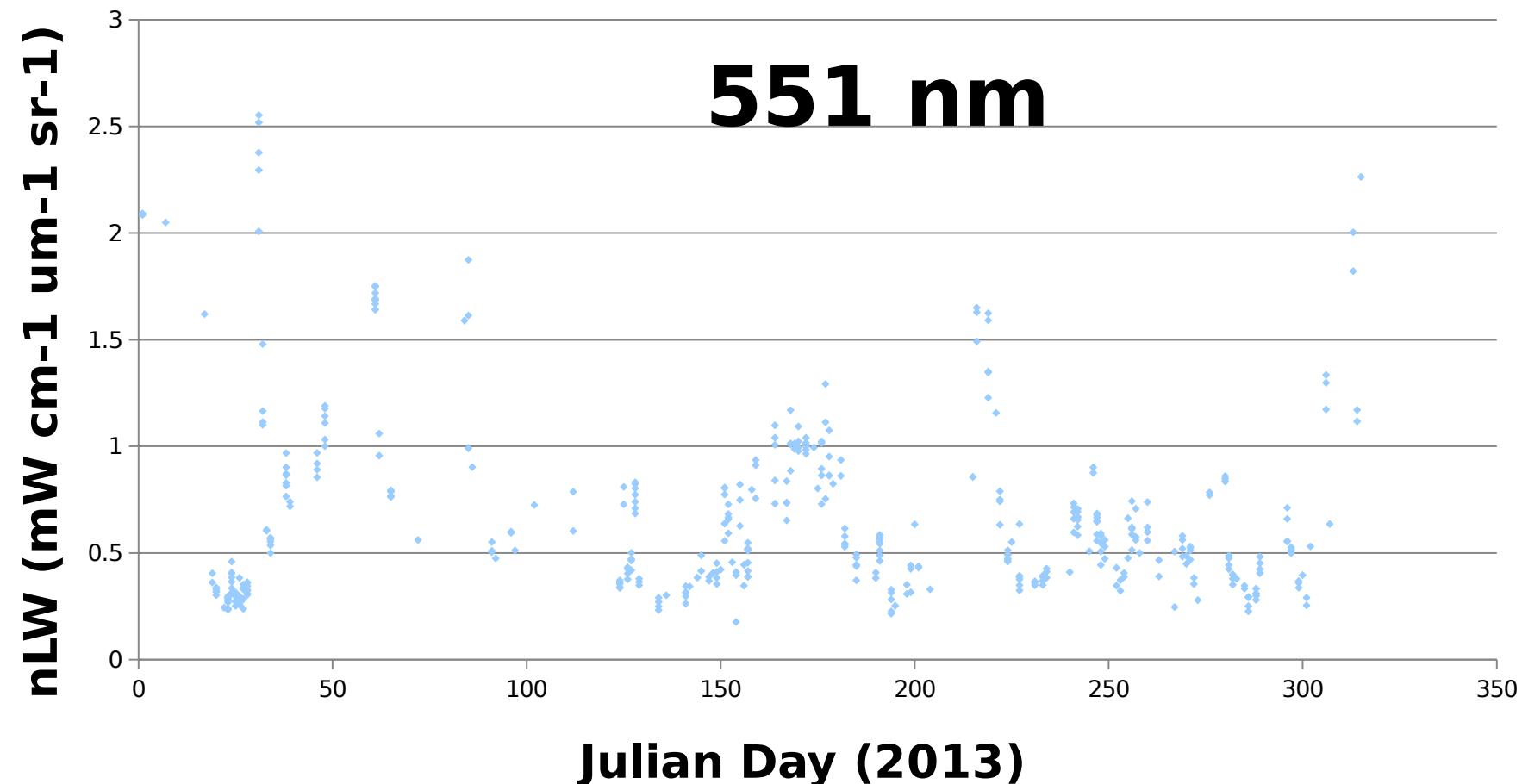
- Level 1.5 Screening
- seasonally Variable Complex waters
- River discharge and open ocean

Data matchup Exclusion criteria:

- +/- 3 hours
- Max wind speed: 8 m/s
- Min AOT: 0.2
- Min % valid pixels: 50
- Max satz: 56 degrees
- Max solz: 70 degrees
- L2flags: ATMFAIL, HILT, CLDICE, LOWNLW, LAND, HISATZEN, HISOLZEN, NAVFAIL, EPSILON, HIGLINT, MAXAERITER, MODGLINT, PRODFAIL, NAVWARN, ATMWARN

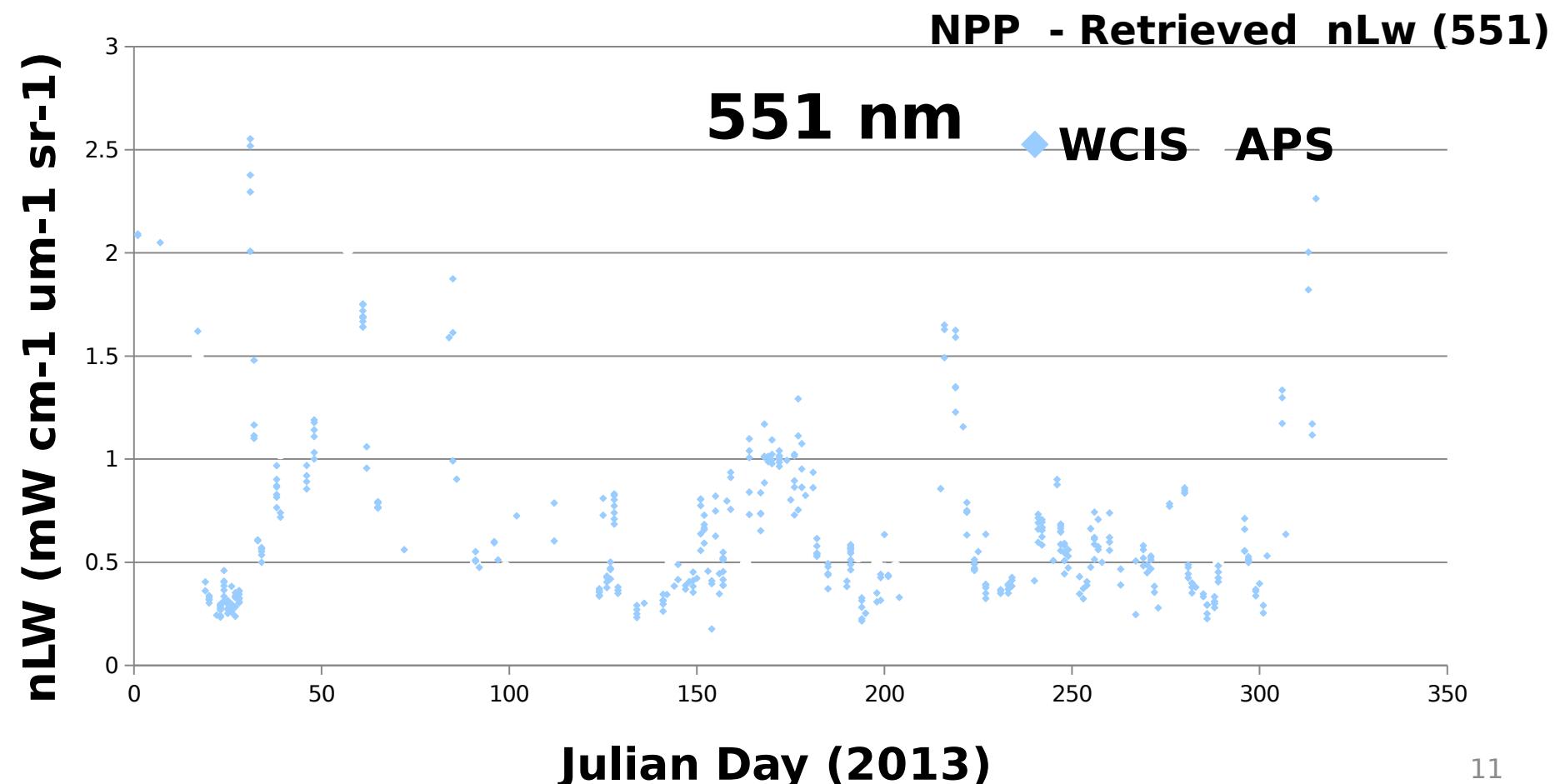
WAVCIS – SeaPrism Time Series

Define the Temporal variability at the Wav-Cis Site -Hourly change over year

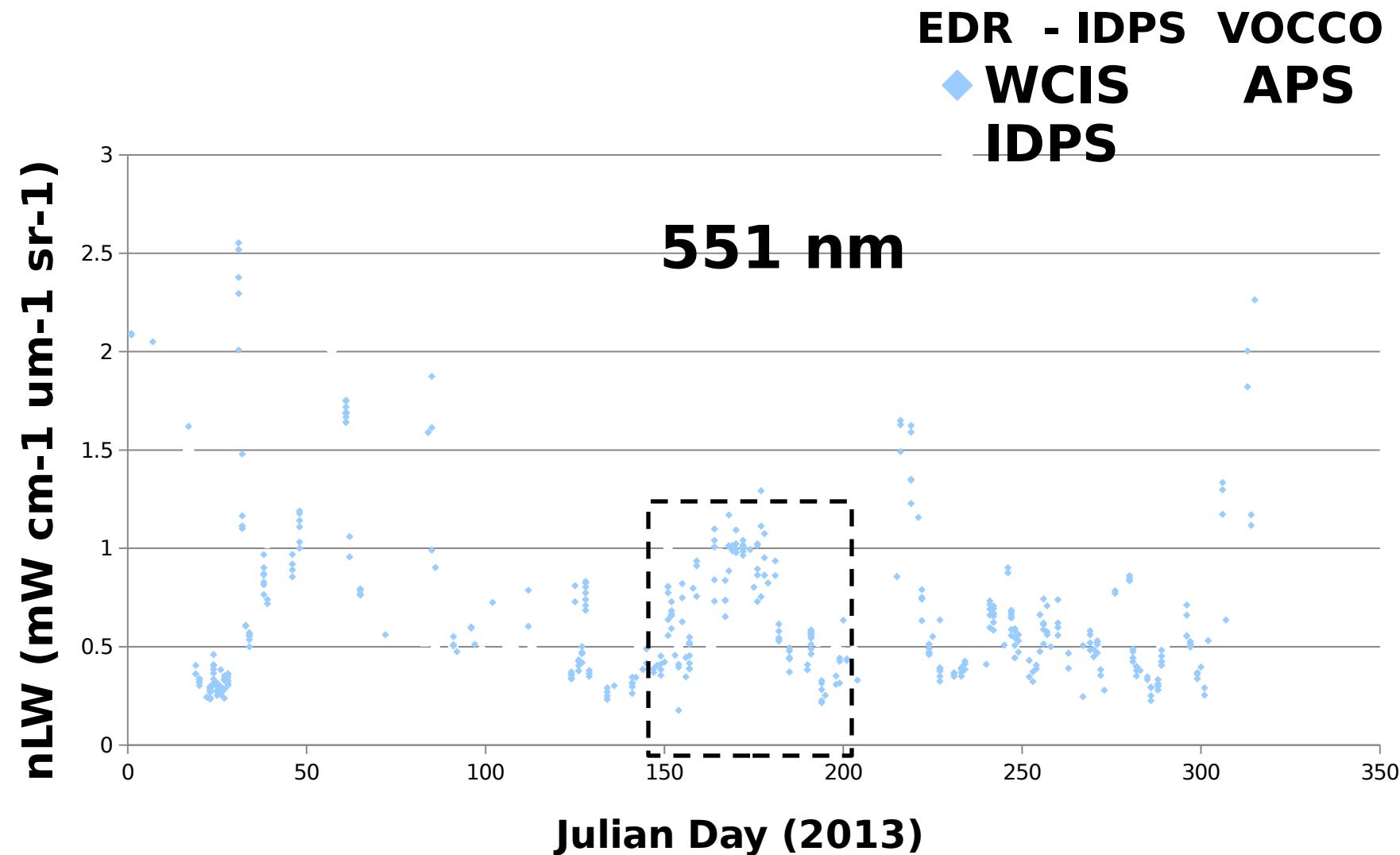


WAVCIS – SeaPrism Time Series

Temporal variability at the Site and the Matchup

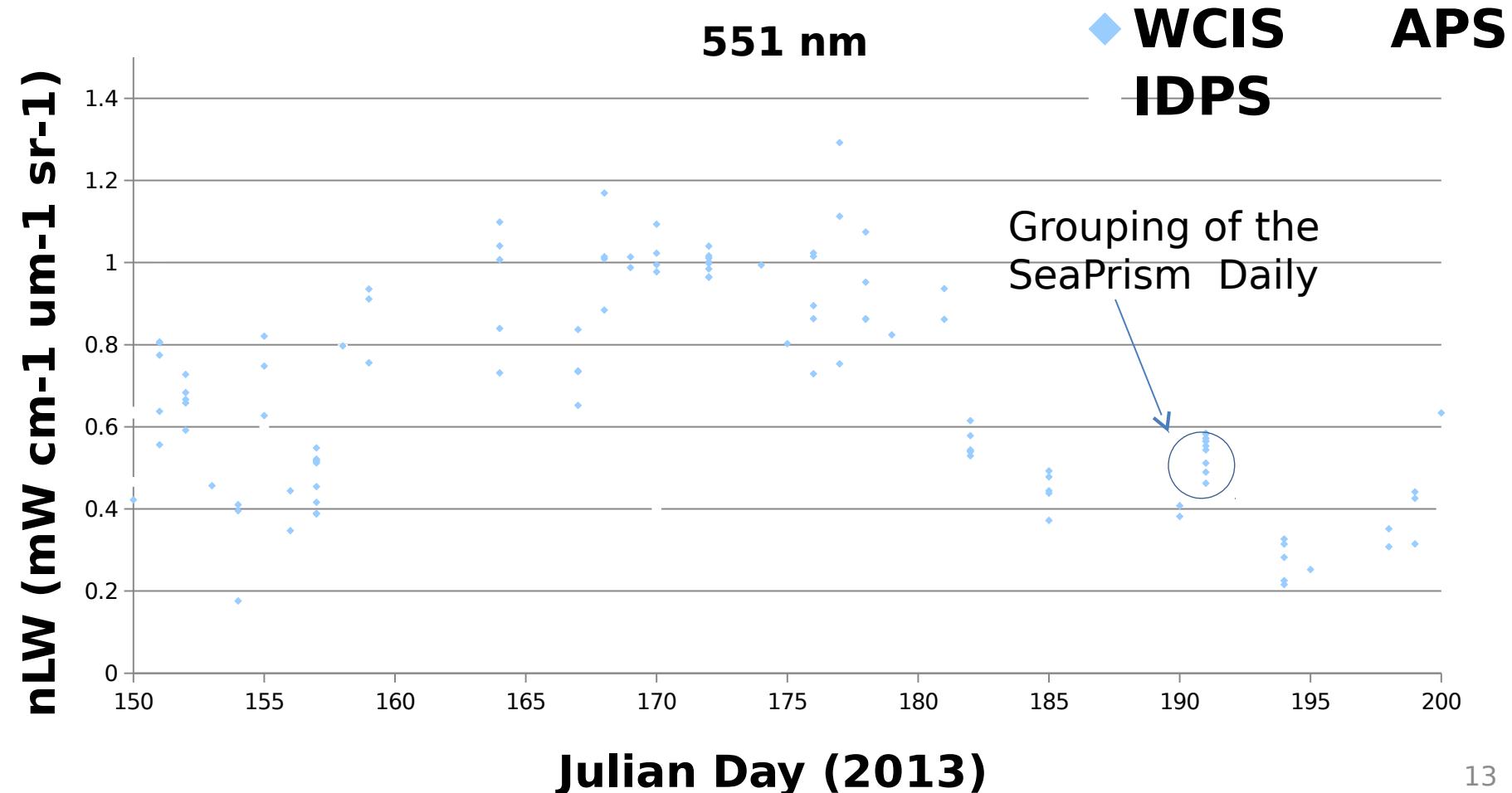


WAVCIS – SeaPrism Time Series

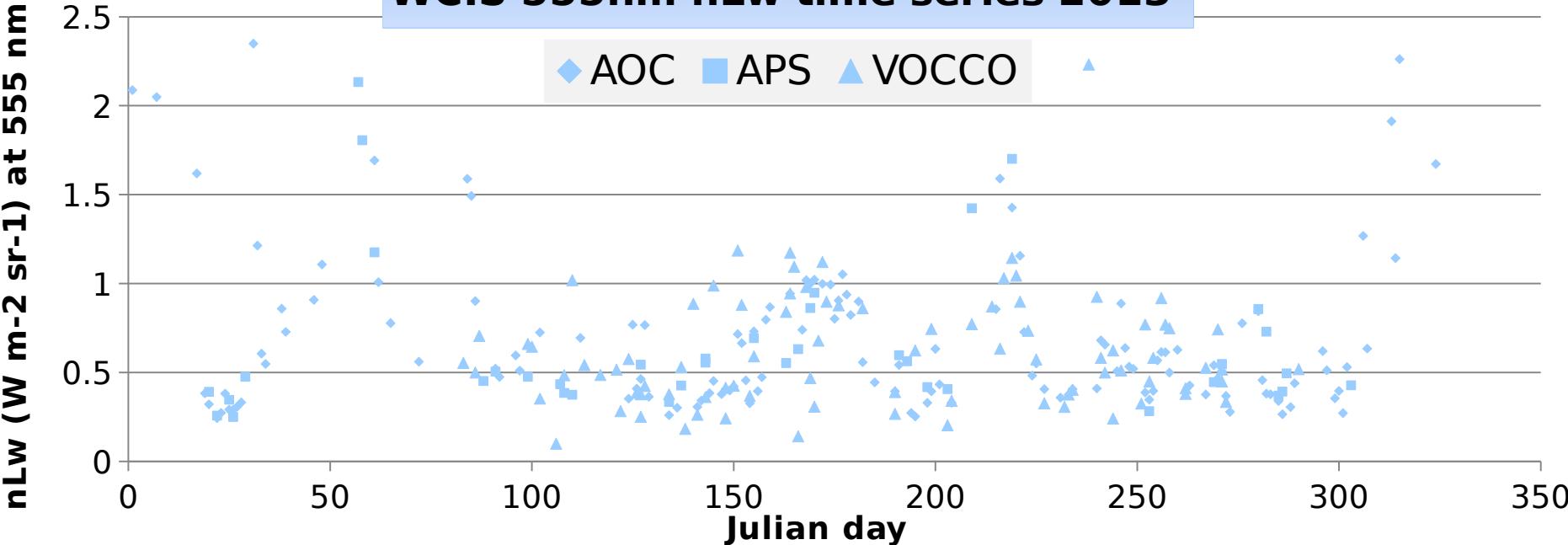


WAVCIS – SeaPrism Time Series

ZOOM in

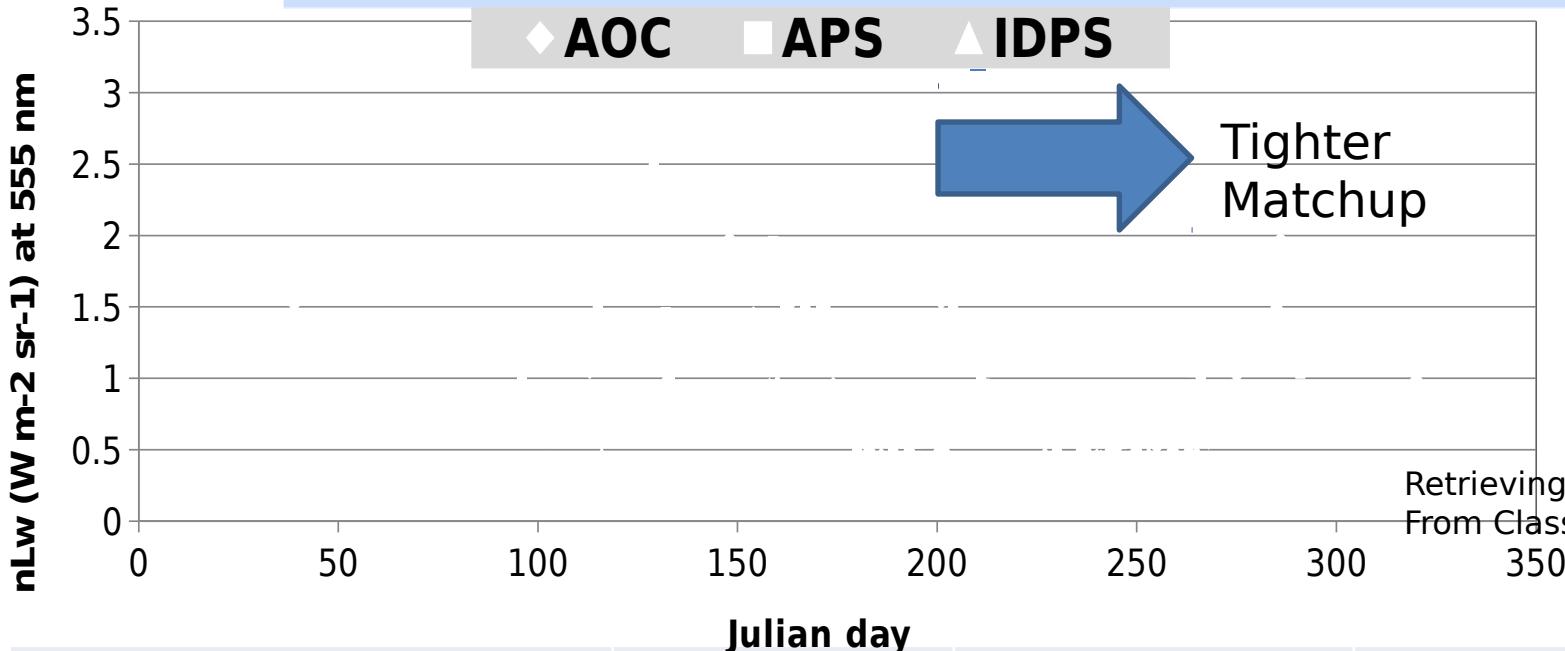


WCIS 555nm nLw time series 2013



Location: WCIS (Jan1 - Nov 20)	# data records	# data records after exclusions applied	# data records after satellite flags
SeaPrism	560	453	453
APS - processing	196	54	34
VOCCO - processins	252	94	94
APS to SeaPrism matchups	43	13	7
VOCCO to SeaPrism matchups	23	17	17
APS to VOCCO matchups	121	30	19
*Satellite Flags: Atmos fail; High LT; cloud/ice; sea ice; low nLw; land; hi satZ; hi solZ; nav fail, High glint; max AER iteration, epsilon out of range; Moderate glint			14
*the APS to VOCCO matchups are not screened for wind speed or any of the in situ			

AAOT 555nm nLw Time Series 2013 Adriatic Sea



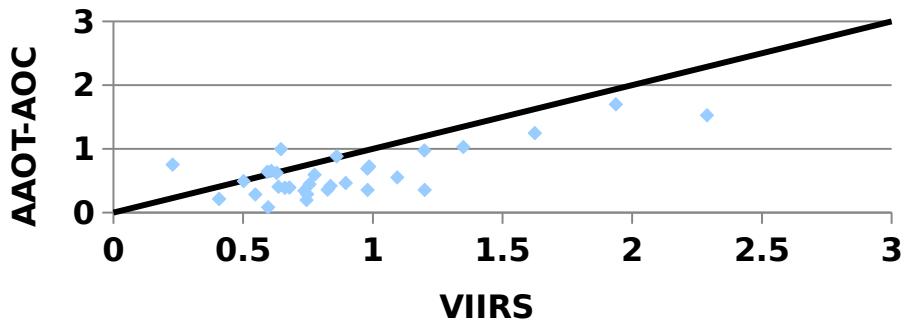
Location: AAOT (Jan1 - Nov 20)	Julian day	# data records after exclusions applied	# data records after satellite flags
SeaPrism AOC	686	382	382
APS -processing	233	93	73
VOCCO - processing	314	143	143
APS to SeaPrism matchups	116	44	35
VOCCO to SeaPrism matchups	68	46	46
APS to VOCCO matchups	55	46	46

*Satellite Flags: Atmos fail; High LT; cloud/ice; sea ice; low nLw; land; hi satZ; hi solZ; nav fail, High glint; max AER iteration, epsilon out of range; Moderate glint

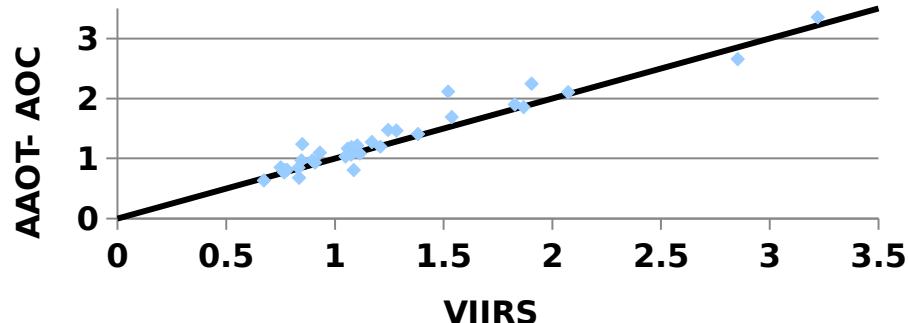
*the APS to VOCCO matchups are not screened for wind speed or any of the in situ

Spectral response Matchup AAOT: APS VIIRS vs SeaPrism nLw, screened 2013

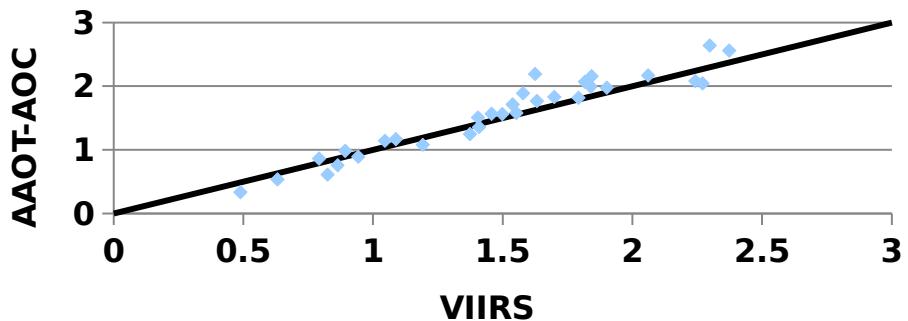
nLw (410 nm)



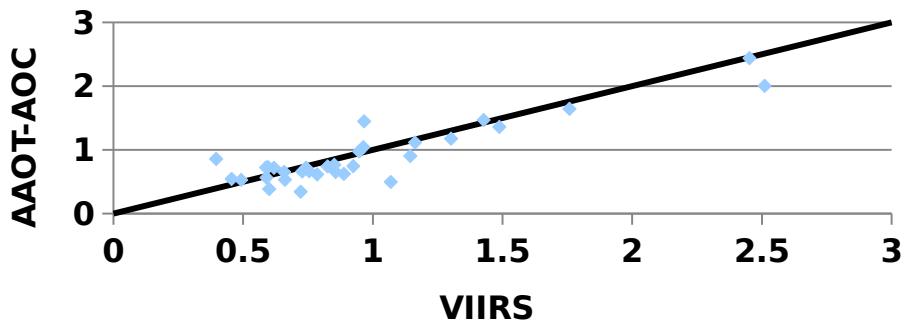
nLw (486 nm)



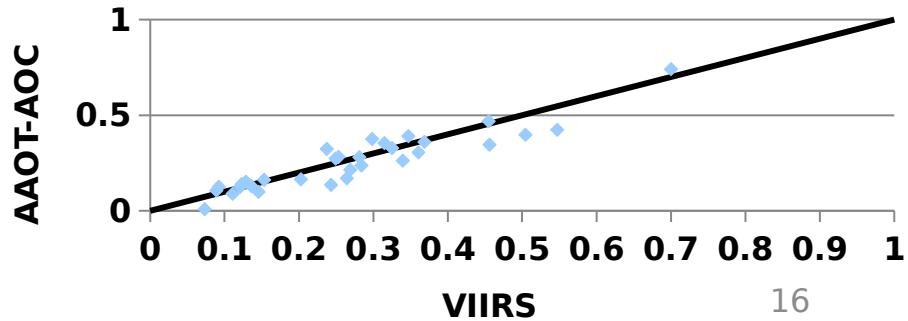
nLw (551 nm)



nLw (443 nm)



nLw (671 nm)



Daily Real time Updates

<ftp://moray.dms.usm.edu/Arnone/GeoCAPE>

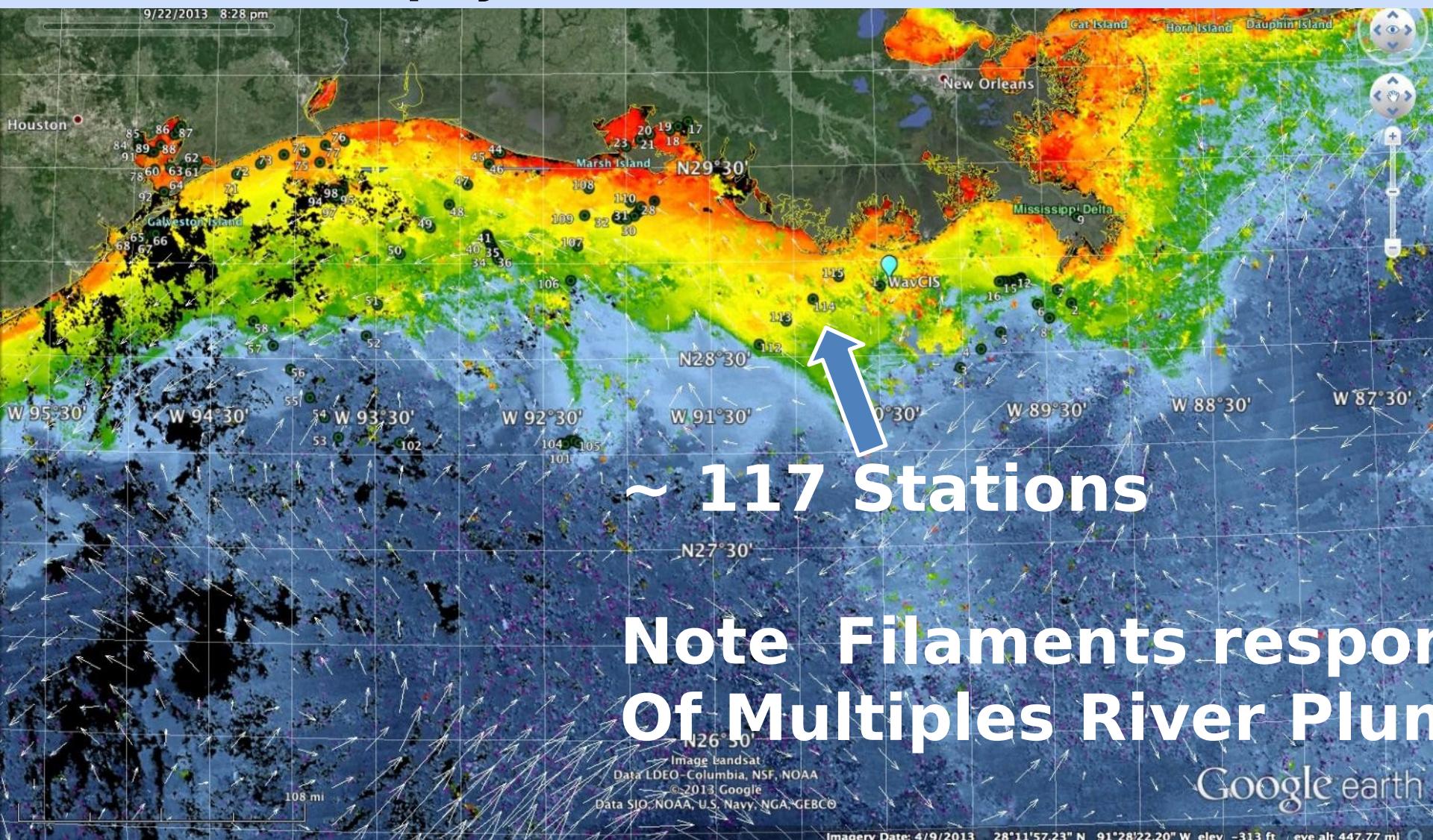
GeoCape Cruise
North West Gulf of Mexico

Sept 19, 2013

SHIP SUPPORT

Imagery and Models
NPP Chlorophyll and AmSea
Model

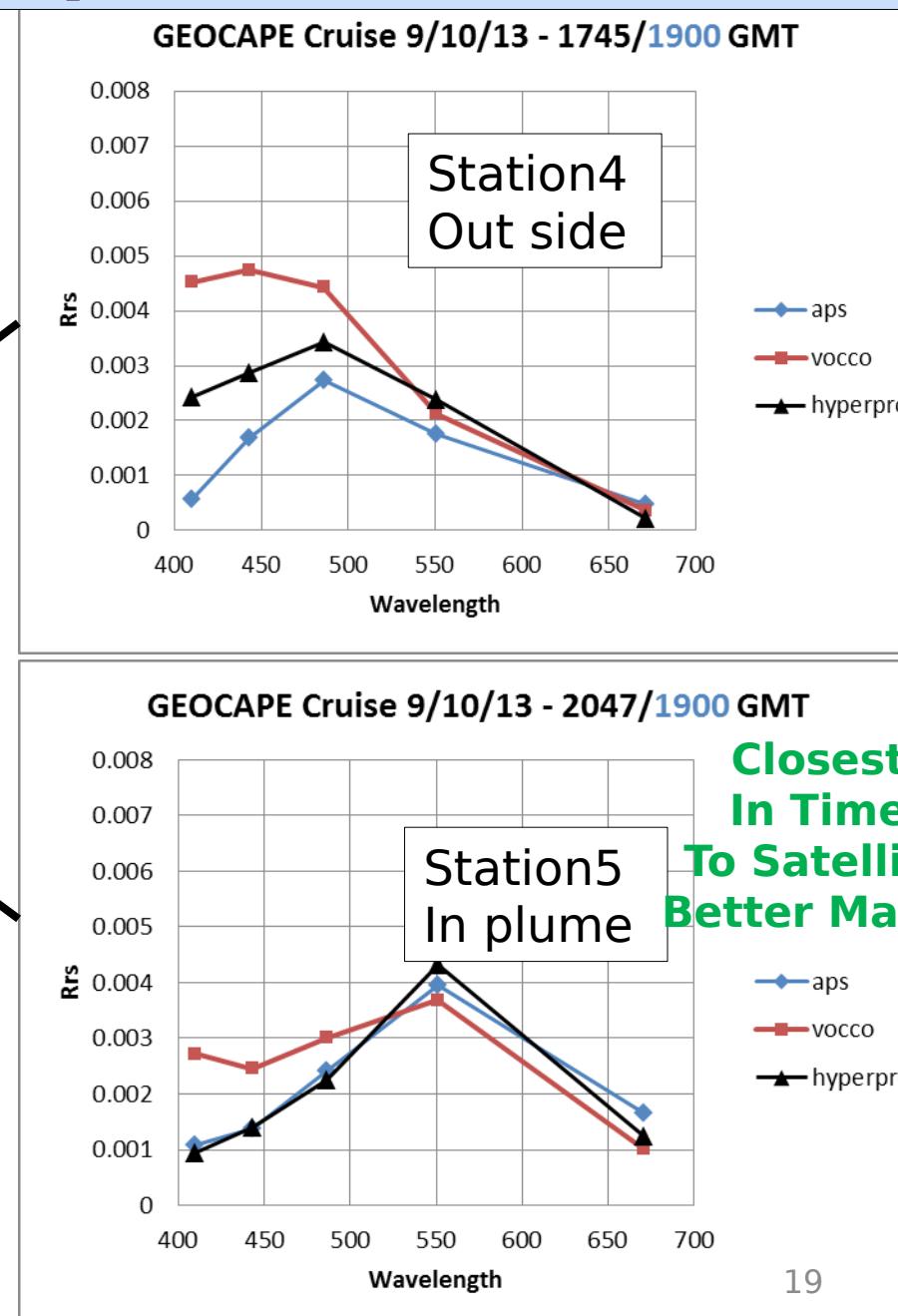
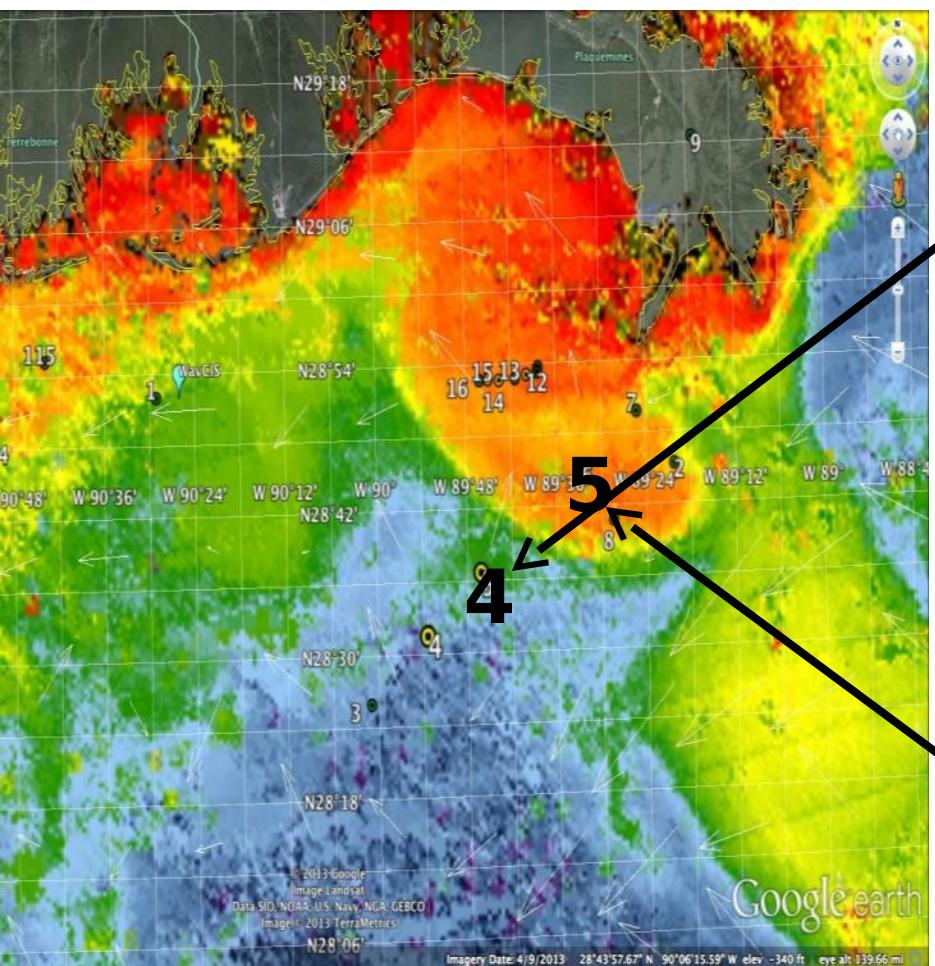
GeoCape Animation Sept 9 - 22, 2013 - Stations NPP - Chlorophyll



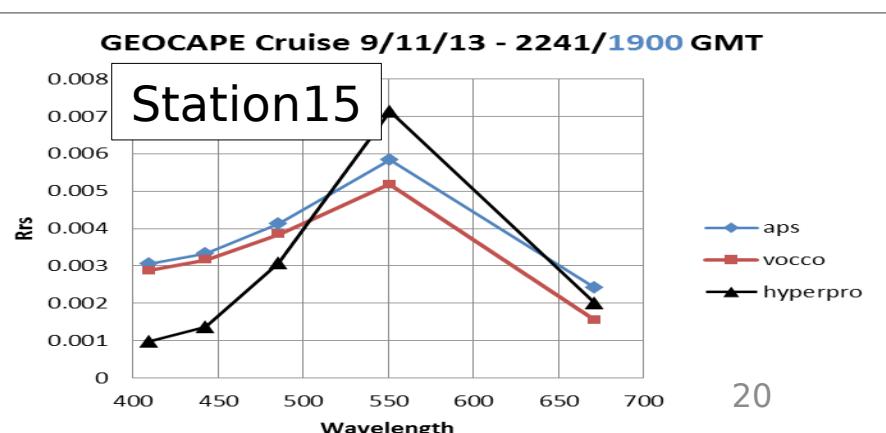
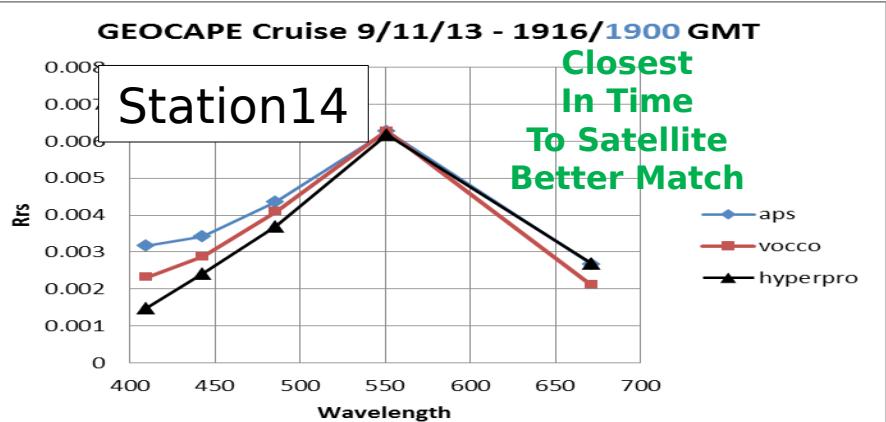
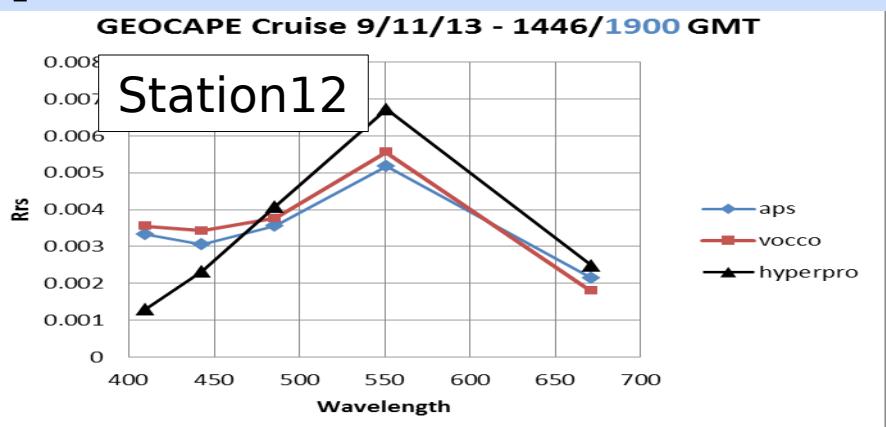
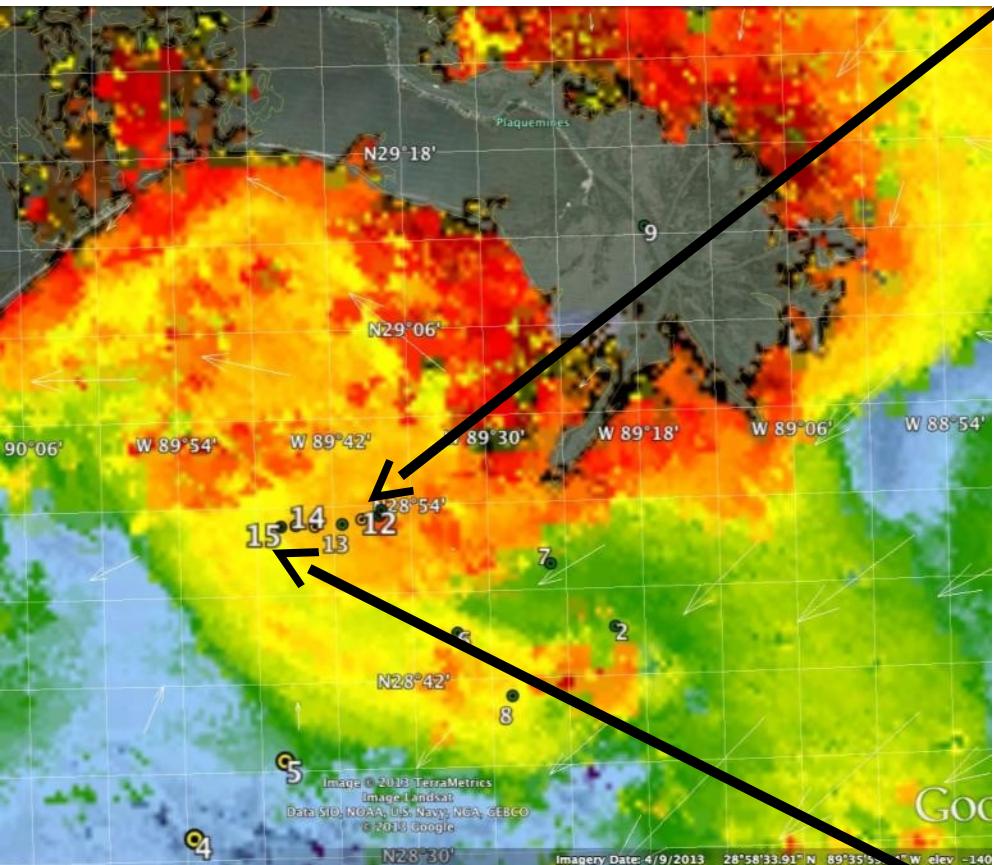
Cal val team participants
Mike Ondrusek - Hyperpro, ASD

Z. Lee - Above water Radiance

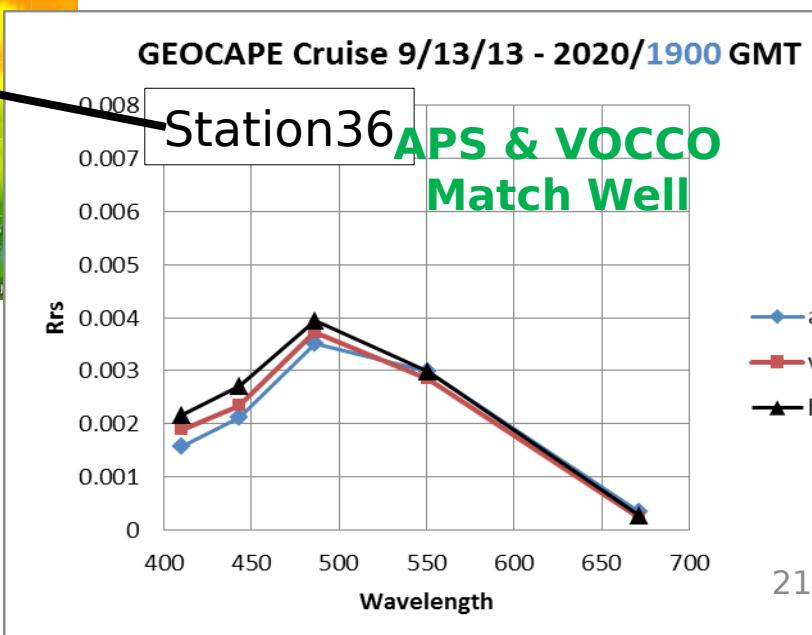
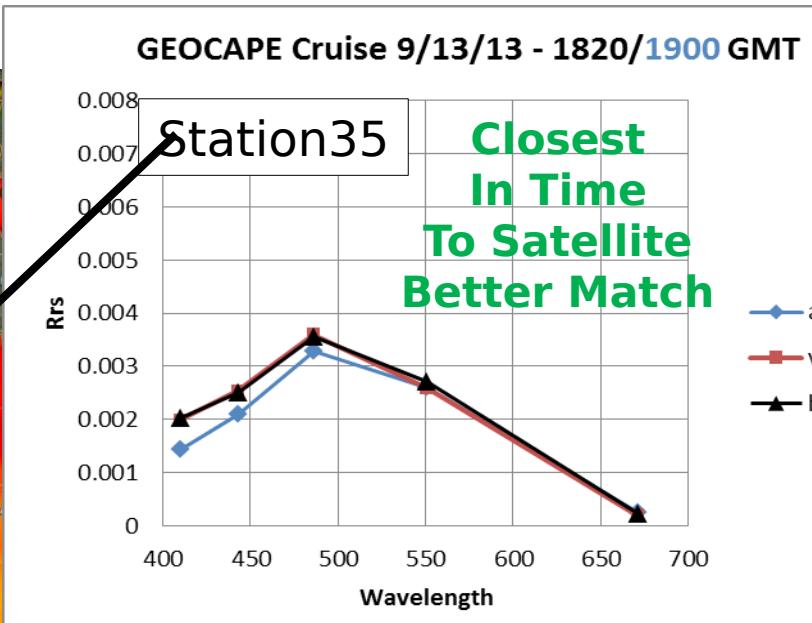
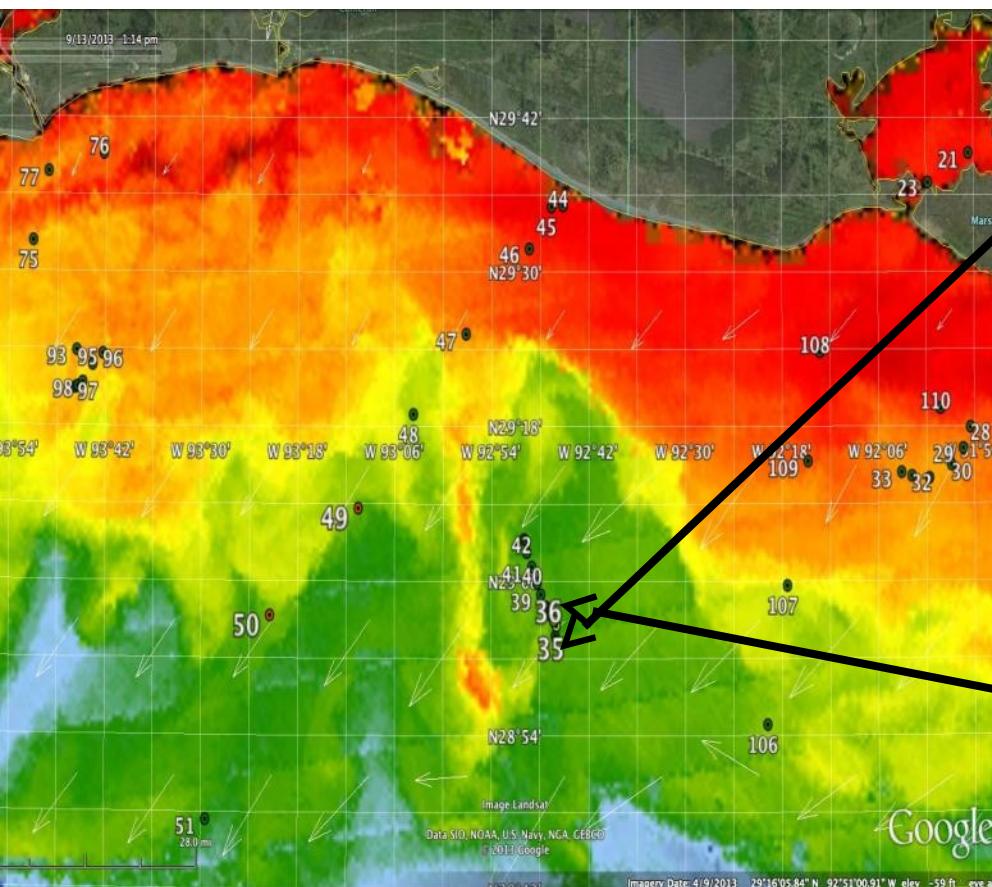
GEOCAPE Matchups - September 10, 2013



GEOCAPE Matchups - September 11, 2013



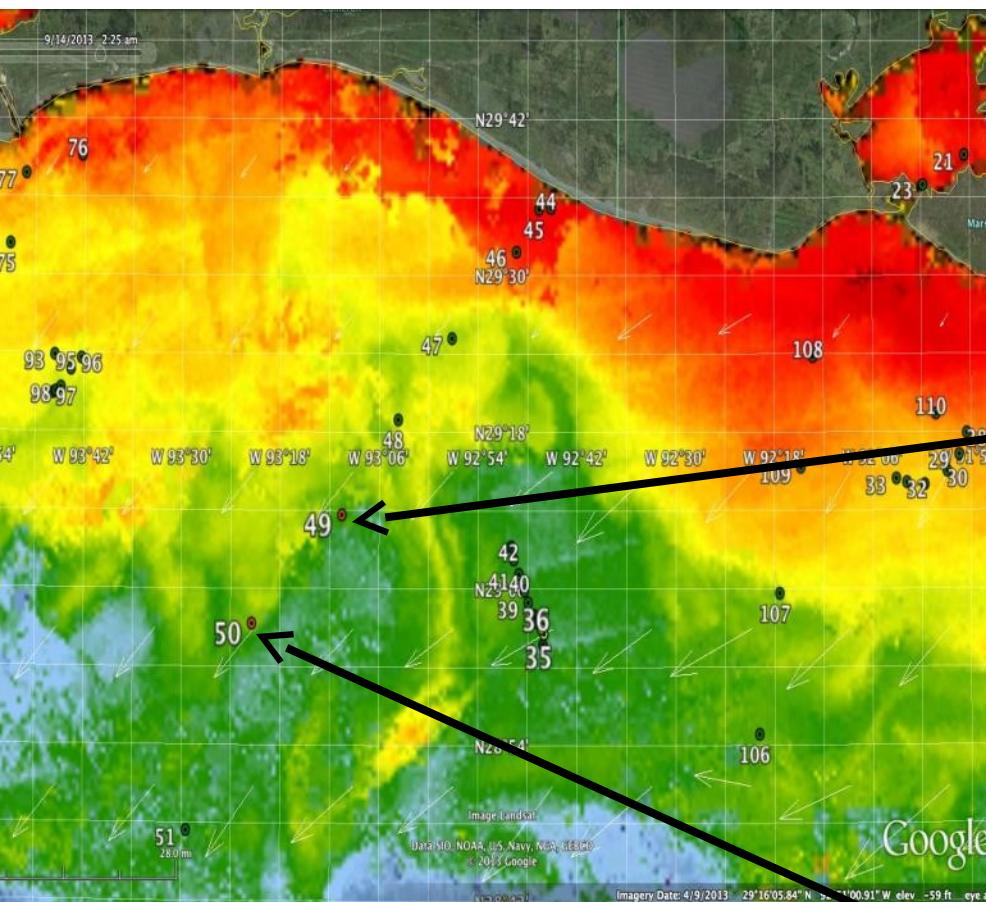
GEOCAPE Matchups - September 13, 2013



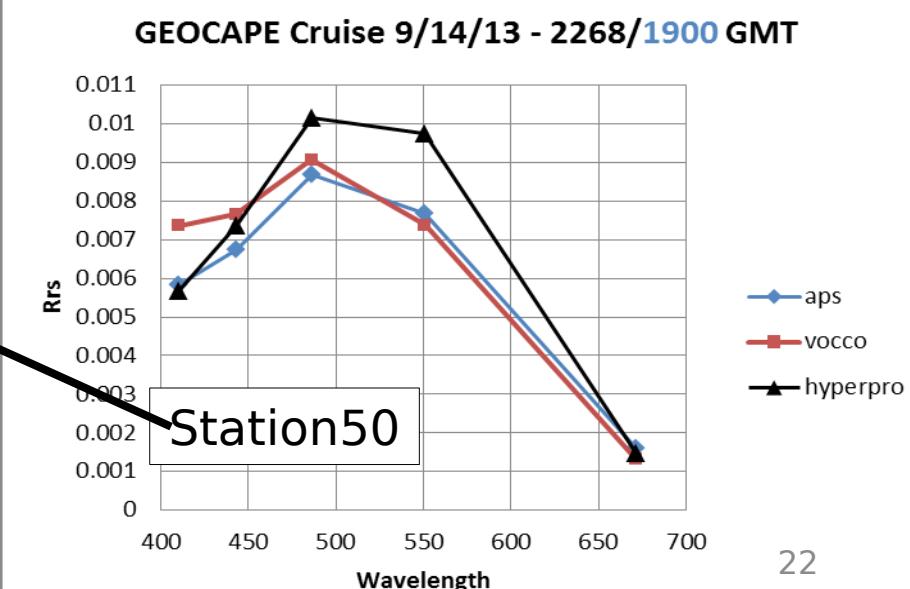
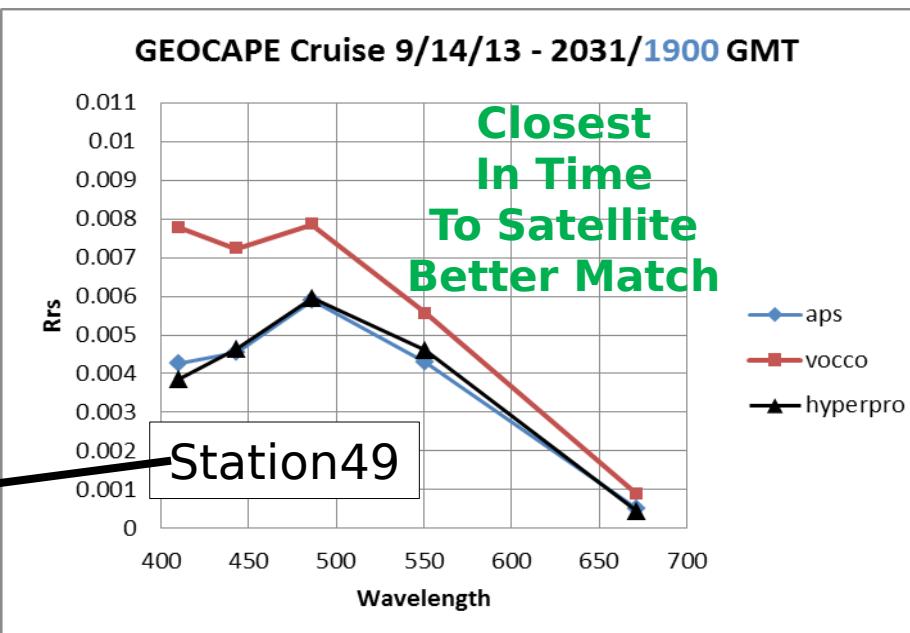
Sept 13, 2013
NPP - VIIRS - Chlorophyll

0.01 0.054 0.29 1.6 8.4 45

CAPE Matchups - September 14, 2013



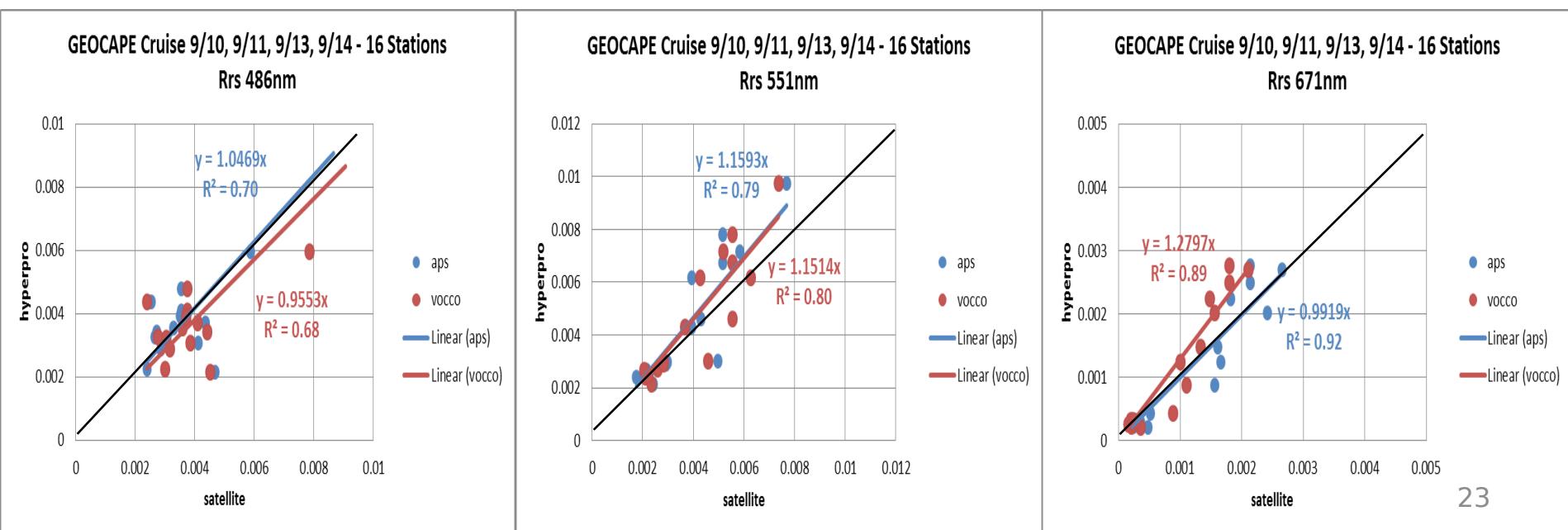
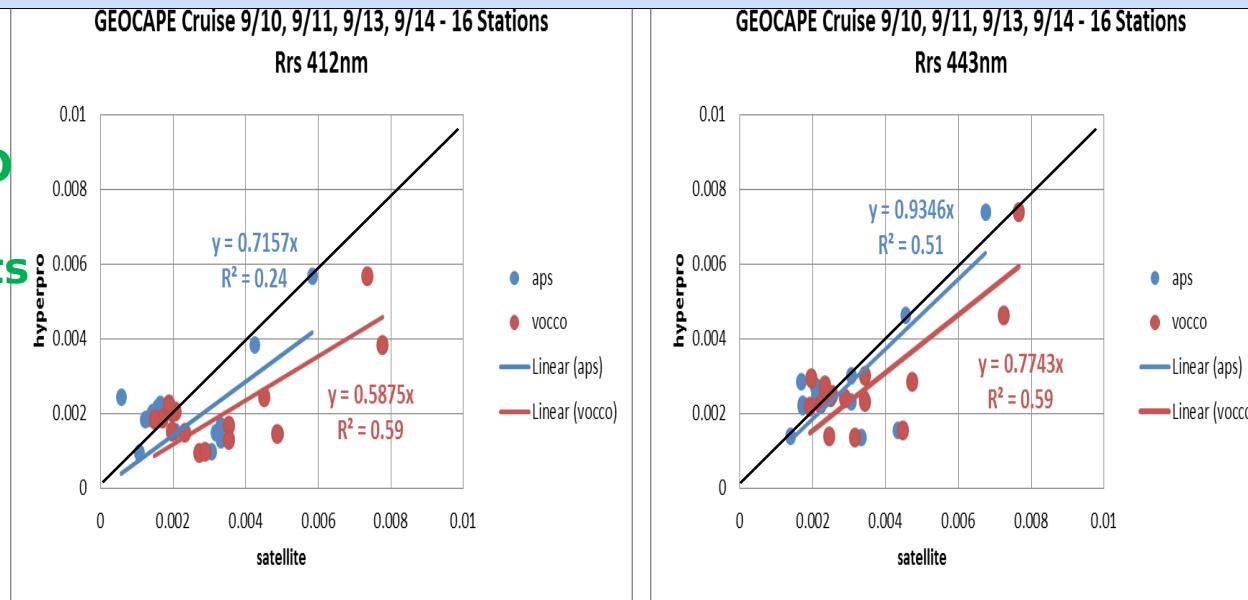
Sept 14, 2013
NPP - VIIRS - Chlorophyll



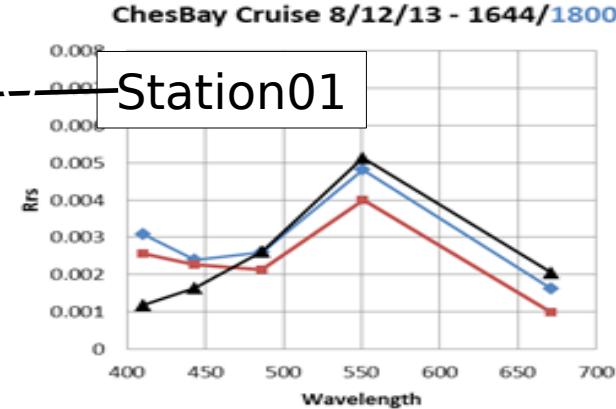
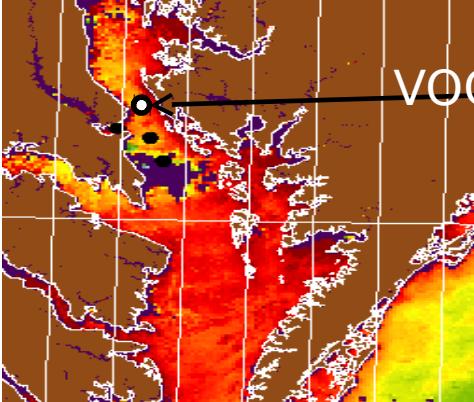
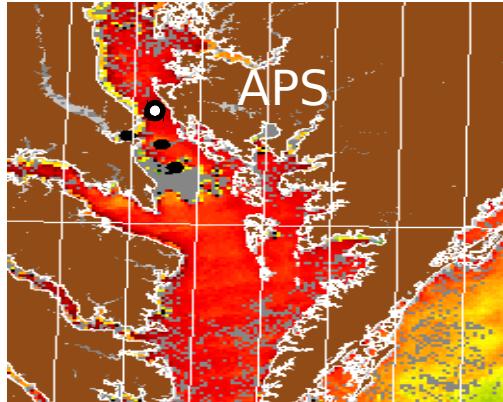
GEOCAPE Statistics - September 09, 11, 13, 14, 2013

**APS & VOCCO
Producing
Similar Results**

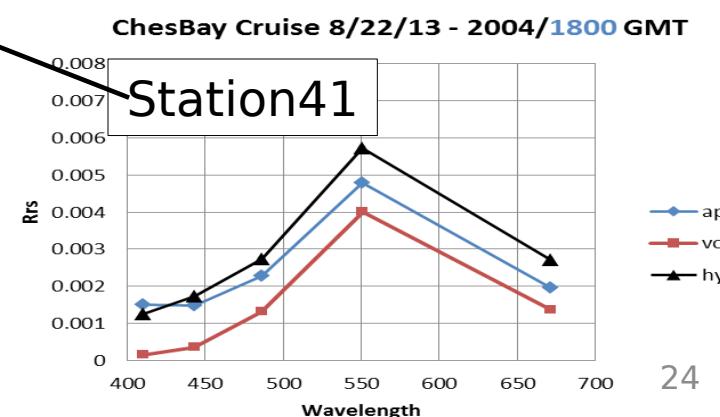
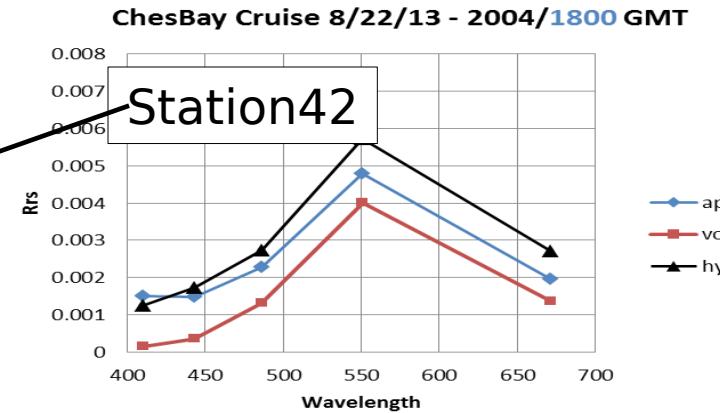
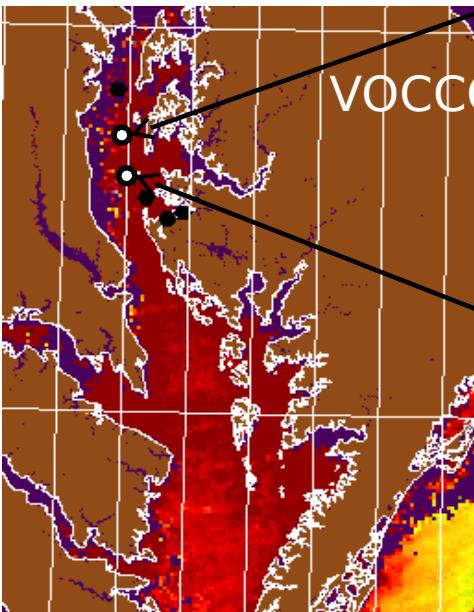
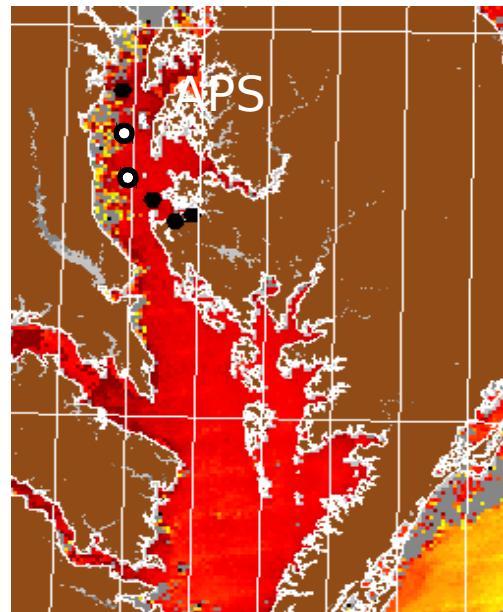
**APS closer
To insitu**



Chesapeake Bay Matchups - August 2013



Matchups getting better in coastal regions
for both APS and VOCCO



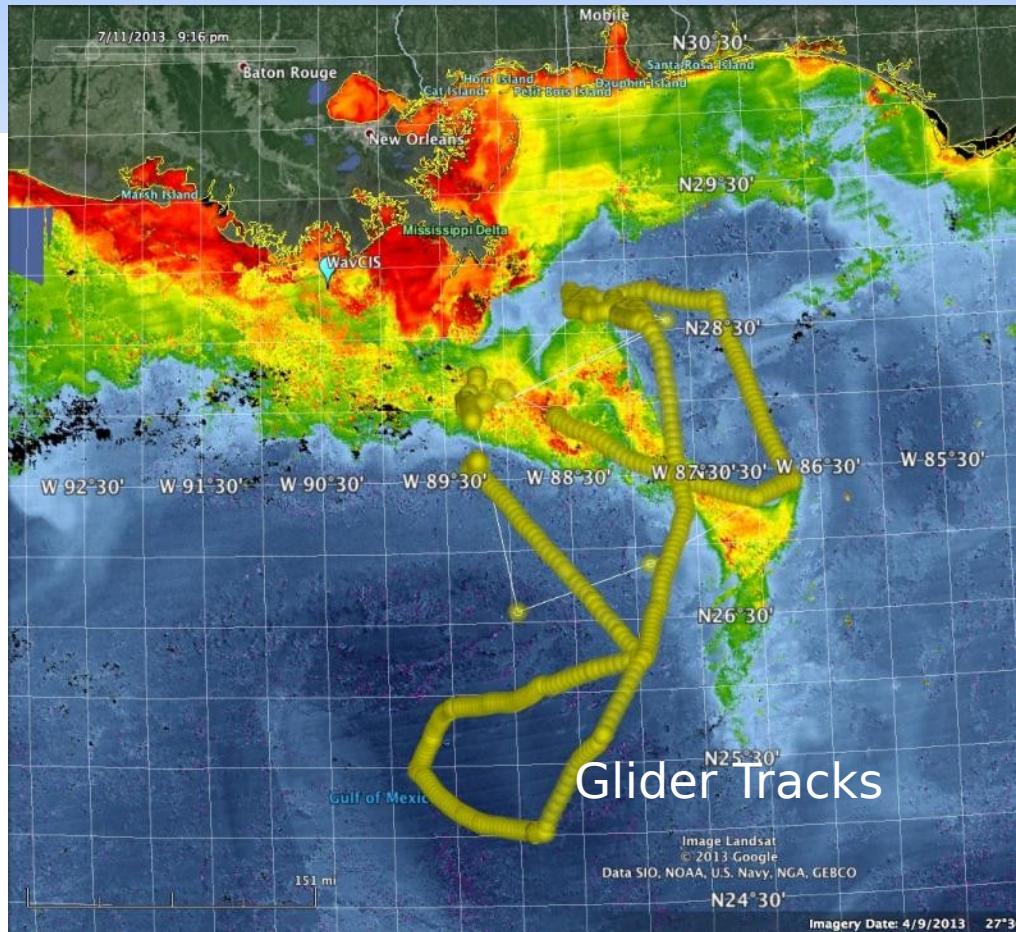
Plans:

- **Glider Sea Spray** - 3 month -Aug - Oct Wet labs puck - Fluorescence, BB

- Aeronet Exploring Coastal adjustments

- Spectral Vicarious Gain Adjustments

- **Papers at:**
 - Ocean Sciences and
 - SPIE - Baltimore



Backup